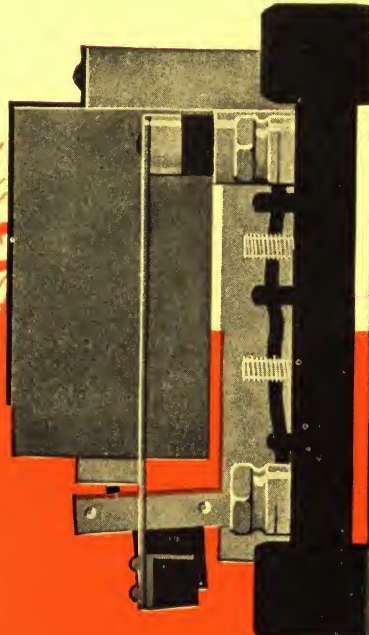


WHEELLOCK APPARATUS



*Wheelock* STANDARDS  
MANUFACTURED BY  
**SIGNAL**  
ENGINEERING & MFG. CO.  
150 WEST 14th ST., NEW YORK





## STANDARDS

For more than a quarter century, Signal Engineering & Mfg. Company has always set the pace in design and construction. Having engineered and developed the alternating current Fire Alarm System . . . the Solenoid Underdome Bell . . . the patented Automatic Master Code Fire Alarm System . . . the patented March-Time Fire Alarm System (continuous ringing) with single stroke instead of vibrating bells or horns, and other achievements . . . the outstanding superiority of Wheelock Standards in Interior Fire Alarm equipment, as in other Wheelock products, is generally recognized.

Likewise with Wheelock Code Call Systems . . . the same pioneering and development in advanced design and construction have resulted in many patented features and the general recognition of "Wheelock" as Standard in code call equipment.

A signal system is no better than its relays. The prominent position in the relay field, maintained by this company year after year, has been largely responsible for the broad acceptance of Wheelock Relays as Standard.

Signal Engineers are available to assist architects, engineers, contractors and manufacturers in problems within the scope of Wheelock Apparatus; in supplying circuit diagrams, estimates, specifications, and in the development of special apparatus to meet specific requirements.

### I N D E X

|                        |              |
|------------------------|--------------|
| Fire Alarm . . . . .   | Pages 3 to 9 |
| Call Systems . . . . . | " 10, 11, 15 |
| Signals . . . . .      | " 12 to 15   |
| Relays . . . . .       | " 16         |

#### Wheelock Standards call for—

Designs, circuits, materials and workmanship to excel, and laboratory tests to exceed—essential requirements of "approval" laboratories, agencies, and jurisdictional boards.

## FIRE ALARM SYSTEMS

The two general types of Fire Alarm Systems in common use are:

(1) Systems using non-code break glass stations in which the location of the particular operated station is not indicated.

(2) Systems using pull lever coded stations, in which the location of the operated station is indicated by the particular code sounded.

(1) Systems using non-code stations are furnished in two types: (a) March-Time System (continuous-ringing), in which breaking glass or opening door of station automatically sends a continuous series of single strokes on all signals, until the station is restored to normal; and (b) Master Code Alarm System, in which breaking glass or opening door of station automatically sends a definite number of rounds of a code — such as 3-3 or 4-4 — on all signals, after which trouble bell rings until the station is restored to normal.

These systems have exclusive patented features in the use of the Wheelock Automatic Interrupter, in that they require no winding or resetting of any kind, and that they have an adjustment for timing the interval between strokes.

(2) Systems using coded stations are also furnished in two types: (a) General Alarm System, in which every signal device operates when a station lever is pulled, giving a general alarm corresponding with the number of the station; and (b) Presignal Alarm System, in which only signal devices on the preliminary alarm circuit are operated when a station lever is pulled. These signals are located within hearing of a fire squad or other emergency force having authority to investigate cause of the alarm. In case of fire of proportions to endanger occupants of building, a key is inserted in the station and the lever pulled again, thus causing operation of all signal devices. This system is designed for use in such buildings as hospitals, hotels, etc., where it is not desirable to sound a general alarm unless there exists an actual fire which is serious enough to require evacuation of premises.

These systems may use either the "Open Door, Pull Lever" type of station or the "Break Glass, Open Door, Pull Lever" type, the latter being particularly suitable for such buildings as hotels or schools.

All coded stations may be provided with means to prevent mixing of signals when two stations are pulled at the same time, at no extra cost.

Panel wiring and all signal and station loops of all systems are fully supervised.

It is impracticable to enumerate the many possible modifications of above basic principles, but it is only necessary to specify "Wheelock Standards" and state just what is to be accomplished.



## FIRE ALARM SYSTEMS

### March-Time

(Continuous Ringing)

#### NON-CODE STATIONS

(Detailed Specification opposite)



Trouble Bell



Fire Alarm Bell  
Sizes: 4"-6"-8"-10"-12"

Are those in which breaking of glass or opening of door of station automatically causes the sounding on all signals of a continuous series of single strokes. (The Wheelock Standard System is the only one in which the timing is adjustable to such as march-time.)

Not more than 14 signals per circuit may be used with 110 volts direct current, not more than 10 per circuit with 110 volts 60 cycle alternating current, and not more than 8 per circuit with 24 volts direct current.



Non-Code, Break Glass

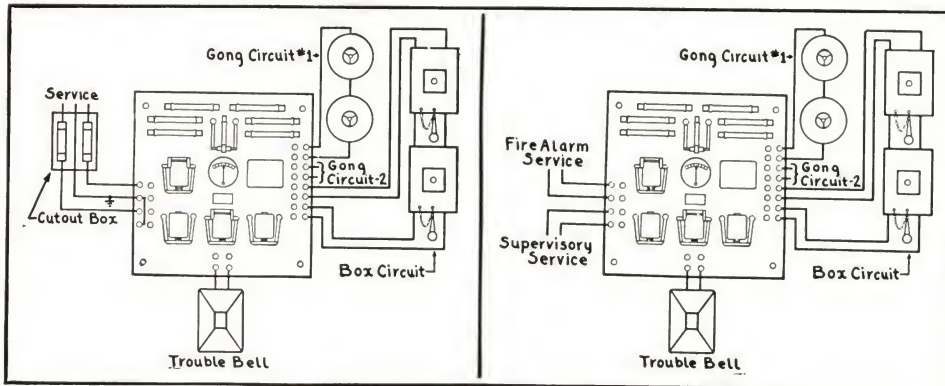
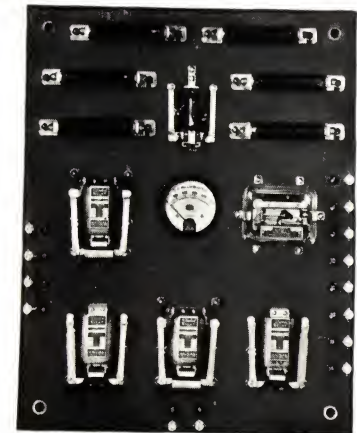


Diagram 3-Wire

Diagram 4-Wire



Control Panel  
Type G201



Trouble Bell



Fire Alarm Bell

Are those in which breaking of glass or opening of door of station automatically causes the sounding on all signals of four rounds of a code such as 3-3 or 4-4. (The Wheelock Standard System requires no winding or resetting, and time between strokes is adjustable.)

Not more than 14 signals per circuit may be used with 110 volts direct current, not more than 10 per circuit with 110 volts 60 cycle alternating current, and not more than 8 per circuit with 24 volts direct current.



Non-Code, Break Glass

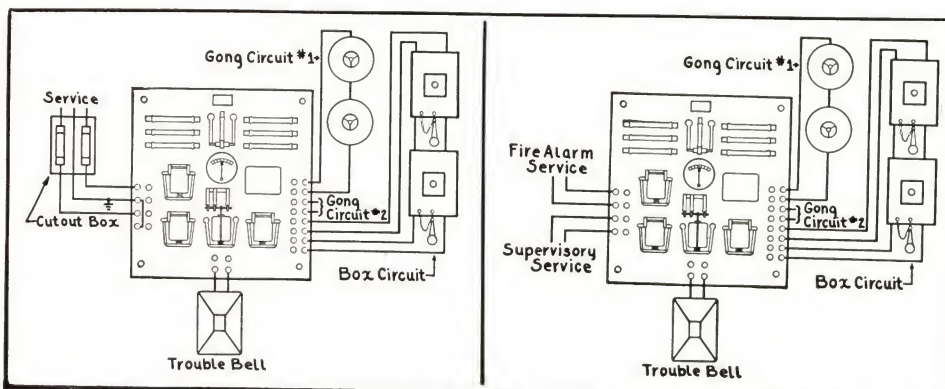
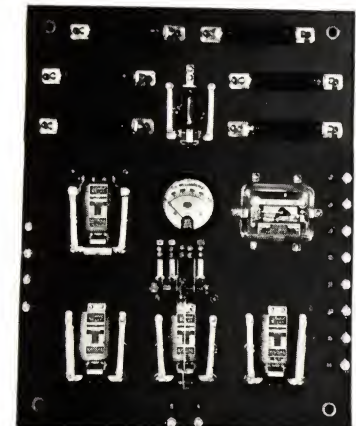


Diagram 3-Wire

Diagram 4-Wire



Control Panel  
Type T201



The contractor shall furnish and install complete with all conduit, wiring and connections a complete fire alarm system, all in accordance with the following and as shown on plans which form part of this specification.

**System:** The system shall be the Wheelock Standard March-Time (continuous ringing) Type as manufactured by the Signal Engineering & Mfg. Co.

**Operation:** Breaking glass or opening door of station shall transmit a continuous series of single strokes on all signals, until the glass is replaced and the station door closed. The trouble bell shall continue to ring until the glass is replaced and the station door closed. The apparatus must be so made as to *allow adjustment of timing between strokes.*

**Control Panel:** Shall be located in apparatus room in basement as shown on plans (locate in a conspicuous and accessible place). Panel shall be of Ebony Asbestos and equipped with necessary supervisory and control equipment, and furnished and installed complete with surface (or flush) type cabinet. Conduits shall enter cabinet through knockouts only on sides or bottom.

**Relays:** Shall have laminated cores. Armatures shall be hinged on stainless steel shafts in suitable bearings. Coils shall be form wound, cotton impregnated, and baked so as to be moisture-proof, and shall stand a breakdown test of 2500 volts 60 cycles for 5 seconds between winding and core.

**Supervision—Single:** Panel wiring and all signal and station loops shall be fully supervised. Trouble bell shall sound in the event of a break or a ground on either the bell or station circuit, while any station glass is broken or door is open, or in the event of main power failure.

**Supervision—Double:** (Same as above, and) Arrangements shall also be made to sound a trouble bell in the event of failure of the auxiliary power supply.

**Trouble Bell:** External trouble bells of the number needed to correspond with the supervision required shall be provided and located as specified.

**Stations:** Shall be of the plain non-code break glass type operating on a supervised circuit and shall be adapted for use in a single gang switch opening. There shall be a total of ( ) stations, arranged on ( ) loops.

The contractor shall furnish and install complete with all conduit, wiring and connections a complete fire alarm system, all in accordance with the following and as shown on plans which form part of this specification.

**System:** The system shall be the Wheelock Standard Master Code Alarm Type as manufactured by the Signal Engineering & Mfg. Co.

**Operation:** Breaking glass or opening door of station shall send four rounds of the code (such as 3-3 or 4-4) on all signals. Operation of the system shall then cease automatically, but the trouble bell shall continue to ring until glass is replaced and station door closed. The apparatus must be so made as to *allow adjustment of timing between strokes.*

**Control Panel:** Shall be located in apparatus room in basement as shown on plans (locate in a conspicuous and accessible place). Shall be of Ebony Asbestos and equipped with necessary supervisory and control equipment, and Master Code Transmitter, and furnished and installed complete with surface (or flush) type cabinet. Conduits shall enter cabinet through knockouts only on sides or bottom.

**Relays:** Shall have laminated cores. Armatures shall be hinged on stainless steel shafts in suitable bearings. Coils shall be form wound, cotton impregnated, and baked so as to be moisture-proof, and shall stand a breakdown test of 2500 volts 60 cycles for 5 seconds between winding and core.

**Supervision—Single:** Panel wiring and all signal and station loops shall be fully supervised. Trouble bell shall sound in the event of a break or a ground on either the bell or station circuit, while any station glass is broken or door is open, or in the event of main power failure.

**Supervision—Double:** (Same as above, and) Arrangements shall also be made to sound a trouble bell in the event of failure of the auxiliary power supply.

**Trouble Bell:** External trouble bells of the number needed to correspond with the supervision required shall be provided and located as specified.

**Stations:** Shall be of the plain non-code break glass type operating on a supervised circuit and shall be adapted for use in a single gang switch opening. There shall be a total of ( ) stations, arranged on ( ) loops.

**Signals:** Bells shall be ( ) in. single stroke solenoid type with form wound moisture-proof coils, underdome, rust proofed and finished in dull black. Coils shall stand a breakdown test of 2500 volts 60 cycles for 5 seconds between winding and frame. The bell shall be so designed that the mechanism will mount into a universal outlet box,  $3\frac{1}{4} \times 4 \times 2\frac{1}{8}$  inches with  $\frac{1}{2}$  inch knockout on each side and at the back, equipped with a terminal block which eliminates splicing and soldering. The bell shell shall cover the entire mechanism. (8", 10" or 12" bells may be specified). There shall be a total of ( ) bells, arranged on ( ) loops, located as follows ( ).

**Current Supply:** (Four Methods, Select one)

**Single Supervised:** The system shall be connected to the 3-wire ( ) volt commercial supply with grounded neutral, with trouble bell arranged to indicate power failure on the side of the circuit which supplies the alarm system.

**Single Supervised:** The system shall be connected to a 2-wire ( ) volt supply to operate the alarm system and to a separate 2-wire ( ) volt supply for supervision, with trouble bell arranged to indicate power failure on the circuit which supplies the alarm system.

**Double Supervised:** The system shall be connected to the 3-wire ( ) volt commercial supply with grounded neutral, with trouble bells arranged to indicate power failure in either side of the circuit.

**Double Supervised:** The system shall be connected to a 2-wire ( ) volt supply to operate the alarm system and to a separate 2-wire ( ) volt supply for supervision, with trouble bells arranged to indicate power failure in either supply circuit.

**Wiring:** Stations on each loop shall be connected in parallel across the two sides of the loop, starting from two of four station terminals on the panel and after connecting through all stations on that loop returning to the other two terminals of that loop. For signal circuits provide two No. 14 wires per loop, on which the signals of that loop are connected in series. Connection diagram shall be furnished by manufacturer, and all wiring is to be according to standard requirements as given for lighting and power elsewhere in the specifications.

**Signals:** Bells shall be ( ) in. single stroke solenoid type with form wound moisture-proof coils, underdome, rust proofed and finished in dull black. Coils shall stand a breakdown test of 2500 volts 60 cycles for 5 seconds between winding and frame. The bell shall be so designed that the mechanism will mount into a universal outlet box,  $3\frac{1}{4} \times 4 \times 2\frac{1}{8}$  inches with  $\frac{1}{2}$  inch knockout on each side and at the back, equipped with a terminal block which eliminates splicing and soldering. The bell shell shall cover the entire mechanism. (8", 10" or 12" bells may be specified). There shall be a total of ( ) bells, arranged on ( ) loops, located as follows ( ).

**Current Supply:** (Four Methods—Select one)

**Single Supervised:** The system shall be connected to the 3-wire ( ) volt commercial supply with grounded neutral, with trouble bell arranged to indicate power failure on the side of the circuit which supplies the alarm system.

**Single Supervised:** The system shall be connected to a 2-wire ( ) volt supply to operate the alarm system and to a separate 2-wire ( ) volt supply for supervision, with trouble bell arranged to indicate power failure on the circuit which supplies the alarm system.

**Double Supervised:** The system shall be connected to the 3-wire ( ) volt commercial supply with grounded neutral, with trouble bells arranged to indicate power failure in either side of the circuit.

**Double Supervised:** The system shall be connected to a 2-wire ( ) volt supply to operate the alarm system and to a separate 2-wire ( ) volt supply for supervision, with trouble bells arranged to indicate power failure in either supply circuit.

**Wiring:** Stations on each loop shall be connected in parallel across the two sides of the loop, starting from two of four station terminals on the panel and after connecting through all stations on that loop returning to the other two terminals of that loop. For signal circuits provide two No. 14 wires per loop, on which the signals of that loop are connected in series. Connection diagram shall be furnished by manufacturer, and all wiring is to be according to standard requirements as given for lighting and power elsewhere in the specifications.



## FIRE ALARM SYSTEMS

### General Alarm

#### CODED STATIONS

(Detailed Specification opposite)



Trouble Bell

Fire Alarm Bell  
4"-6"-8"  
10"-12"



Are those in which every signal device operates when a station lever is pulled, giving a general alarm coded to correspond with the number of the operated station.

Not more than 14 signals per circuit may be used with 110 volts direct current, not more than 10 per circuit with 110 volts 60 cycle alternating current, and not more than 8 per circuit with 24 volts direct current.



Break Glass, Open Door, Pull Lever

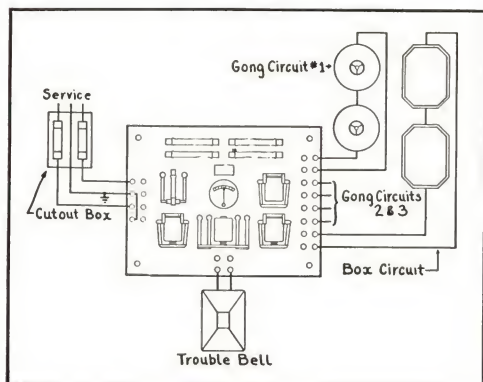


Diagram 3-Wire

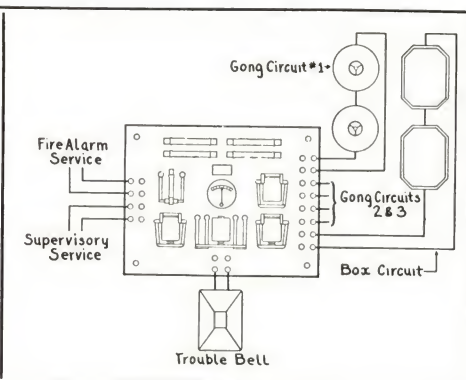
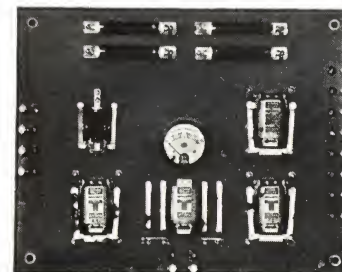


Diagram 4-Wire



Control Panel  
Type C301

## Presignal Alarm

### CODED STATIONS

(Detailed Specification opposite)



Trouble Bell



Fire Alarm Bell

Are those in which only the signal devices within hearing of a fire squad or other emergency force are operated when a station lever is pulled. In case of actual fire a key is inserted in the station and the lever pulled again, thus causing the operation of all signal devices.

Not more than 14 signals per circuit may be used with 110 volts direct current, not more than 10 per circuit with 110 volts 60 cycle alternating current, and not more than 8 per circuit with 24 volts direct current.



Break Glass, Open Door, Pull Lever

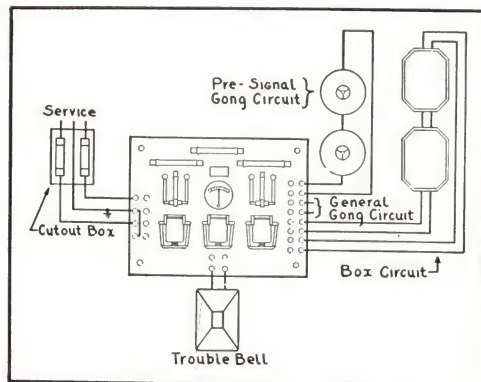


Diagram 3-Wire

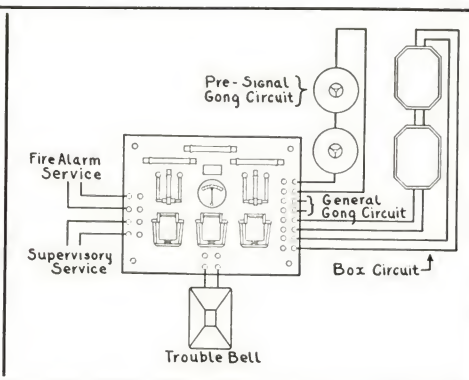
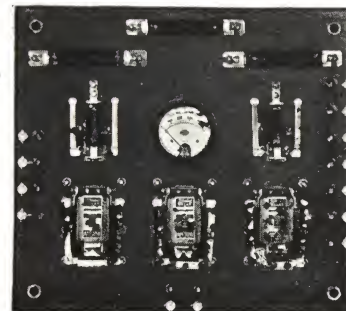


Diagram 4-Wire



Control Panel  
Type CD111



The contractor shall furnish and install complete with all conduit, wiring and connections a complete fire alarm system, all in accordance with the following and as shown on plans which form part of this specification.

**System:** The system shall be the Wheelock Standard Coded General Alarm Type as manufactured by the Signal Engineering & Mfg. Co.

**Operation:** Pulling down the lever of any station shall cause four rounds of the code of that station to be sounded on all signals. At the completion of the four rounds the system shall automatically restore itself to normal.

**Control Panel:** Shall be located in apparatus room in basement as shown on plans (locate in a conspicuous and accessible place). Panel shall be of Ebony Asbestos and equipped with necessary supervisory and control equipment, and furnished and installed complete with surface (or flush) type cabinet. Conduits shall enter cabinet through knockouts only on sides or bottom.

**Relays:** Shall have laminated cores. Armatures shall be hinged on stainless steel shafts in suitable bearings. Coils shall be form wound, cotton impregnated, and baked so as to be moisture-proof, and shall stand a breakdown test of 2500 volts 60 cycles for 5 seconds between winding and core.

**Supervision—Single:** Panel wiring and all signal and station loops shall be fully supervised. Trouble bell shall sound in the event of a break or a ground on either the bell or station circuit, or in the event of main power failure.

**Supervision—Double:** (Same as above, and) Arrangements shall also be made to sound a trouble bell in the event of failure of the supervisory power supply.

**Trouble Bell:** External trouble bells of the number needed to correspond with the supervision required shall be provided and located as specified.

**Stations:** There shall be ( ) surface), ( ) semi-flush), ( ) flush) coded type stations, with codes as follows ( ), installed and connected at locations as shown on plans. Stations shall be open door, pull lever type with normally closed contacts. (Alternate, for schools, etc.—Stations shall be hinged hammer or hammer and chain, break glass, open door, pull lever type with normally closed contacts). The pull lever shall be so arranged that the pull is forward and downward, so as to permit the use of four fingers in operating. When the door is closed, the lever shall be in vertical position, flush with the surface of the movement plate. When the door is opened, the lever shall move forward to a position which

The contractor shall furnish and install complete with all conduit, wiring and connections a complete fire alarm system, all in accordance with the following and as shown on plans which form part of this specification.

**System:** The system shall be the Wheelock Standard Coded Presignal Alarm Type as manufactured by the Signal Engineering & Mfg. Co.

**Operation:** Pulling down the lever of any station shall cause four rounds of the code of that station to be sounded on the presignals. At the completion of the four rounds the system shall automatically restore itself to normal. To sound a general alarm, a key must be inserted at the station and the lever again pulled—sounding on all signals, four rounds of the code of that station.

**Control Panel:** Shall be located in apparatus room in basement as shown on plans (locate in a conspicuous and accessible place.) Panel shall be Ebony Asbestos and equipped with necessary supervisory and control equipment, and furnished and installed complete with surface (or flush) type cabinet. Conduits shall enter cabinet through knockouts only on sides or bottom.

**Relays:** Shall have laminated cores. Armatures shall be hinged on stainless steel shafts in suitable bearings. Coils shall be form wound, cotton impregnated, and baked so as to be moisture-proof, and shall stand a breakdown test of 2500 volts 60 cycles for 5 seconds between winding and core.

**Supervision—Single:** Panel wiring and all signal and station loops shall be fully supervised. Trouble bell shall sound in the event of a break or a ground on either the bell or station circuit, if any presignal key is inserted, or in the event of main power failure.

**Supervision—Double:** (Same as above, and) Arrangements shall also be made to sound a trouble bell in the event of failure of the supervisory power supply.

will permit an easy grasp by the operator. The lever shall be so affixed to the mechanism that it cannot be removed without removing the mechanism cover and mechanism. Main spring shall be held symmetrically wound with a cup retainer. Code wheels shall be interchangeable and self locating on shaft.

**Signals:** Bells shall be ( ) in. single stroke solenoid type with form wound moisture-proof coils, underdome, rust proofed and finished in dull black. Coils shall stand a breakdown test of 2500 volts 60 cycles for 5 seconds between winding and frame. The bell shall be so designed that the mechanism will mount into a universal outlet box  $3\frac{1}{4} \times 2\frac{1}{8}$  inches with  $\frac{1}{2}$  inch knockout on each side and at the back, equipped with a terminal block which eliminates splicing and soldering. The bell shell shall cover the entire mechanism (8", 10" or 12" bells may be specified). There shall be a total of ( ) bells, arranged on ( ) loops, located as follows ( ).

**Current Supply:** (Four Methods—Select one)

**Single Supervised:** The system shall be connected to the 3-wire ( ) volt commercial supply with grounded neutral, with trouble bell arranged to indicate power failure on the side of the circuit which supplies the alarm system.

**Single Supervised:** The system shall be connected to a 2-wire ( ) volt supply to operate the alarm system and to a separate 2-wire ( ) volt supply for supervision, with trouble bell arranged to indicate power failure on the circuit which supplies the alarm system.

**Double Supervised:** The system shall be connected to the 3-wire ( ) volt commercial supply with grounded neutral, with trouble bells arranged to indicate power failure in either side of the circuit.

**Double Supervised:** The system shall be connected to a 2-wire ( ) volt supply to operate the alarm system and a separate 2-wire ( ) volt supply for supervision, with trouble bells arranged to indicate power failure in either supply circuit.

**Wiring:** For each loop of stations provide two No. 14 wires to form a loop on which the stations of that loop are connected in series. (Not more than twenty stations on one station loop. Panels shall be provided with extra terminals on this basis.) For signal circuits provide two No. 14 wires to form a loop on which the signals of that loop are connected in series. Connection diagram shall be furnished by manufacturer, and all wiring is to be according to standard requirements as given for lighting and power elsewhere in the specifications.

**Trouble Bell:** External trouble bells of the number needed to correspond with the supervision required shall be provided and located as specified.

**Stations:** There shall be ( ) surface), ( ) semi-flush), ( ) flush) presignal, coded type stations, with codes as follows ( ), installed and connected at locations as shown on plans. Stations shall be open door, pull lever type with normally closed contacts. (Alternate, for schools, etc.—Stations shall be hinged hammer or hammer and chain, break glass, open door, pull lever type with normally closed contacts.) The pull lever (same as above).

**Signals:** Presignal bells shall be 4 in. single stroke solenoid type. General alarm bells shall be ( ) in. single stroke solenoid type. All bells shall be underdome, rust proofed and finished in dull black, with form wound moisture-proof coils. Coils shall stand a breakdown test of 2500 volts 60 cycles for 5 seconds between winding and frame. The bell shall be so designed that the mechanism will mount into a universal outlet box  $3\frac{1}{4} \times 2\frac{1}{8}$  inches with  $\frac{1}{2}$  inch knockout on each side and at the back, equipped with a terminal block which eliminates splicing and soldering. The bell shell shall cover the entire mechanism (8", 10" or 12" bells may be specified). There shall be a total of ( ) presignal bells, arranged on ( ) loops, and a total of ( ) general alarm bells, arranged on ( ) loops, located as follows ( ).

**Current Supply:** (Four Methods—Select one) (Same as above).

**Wiring:** For each loop of stations provide four No. 14 wires to form 2 loops connected through the stations in series. (Not more than twenty stations on one station loop. Panel shall be provided with extra terminals on this basis.) For signal circuits provide two No. 14 wires to form a loop on which the signals of that loop are connected in series. Connection diagram shall be furnished by manufacturer, and all wiring shall be according to standard requirements as given for lighting and power elsewhere in the specifications.



# Wheelock STANDARDS

## FIRE ALARM STATIONS

### Non-Code Break Glass Stations



Non-Code, Break Glass, (Hinged Hammer)  
Type NCFI (Flush)  
Type NCSI (Surface)  
Type NCSFI (Semi-flush)



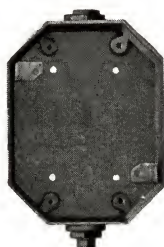
Standard Switch Box



Coded, Break Glass, (Hinged Hammer) Open Door, Pull Lever  
Type FHP210 (Flush)  
Type SHP210 (Surface)  
Type SFHP210 (Semi-flush)



Coded, Break Glass, (Hammer and Chain) Open Door, Pull Lever  
Type FGP210 (Flush)  
Type SGP210 (Surface)  
Type SFGP210 (Semi-flush)



Back Box for Coded Stations

Are used only with the March-Time and Master Code Alarm Systems and may be of either the hinged hammer or the hammer and chain type, and either surface, flush, or semi-flush. Breaking glass or opening door of station causes alarm to be sounded. Keys are provided for testing and for Fire Drill. Stations are designed to fit either a standard rectangular switch box or a standard square outlet box.

### Pull Lever Coded Stations

Are used with Coded General Alarm and Coded Presignal Alarm Systems and may be of the plain open door, pull lever type or of the hinged hammer or hammer and chain, break glass, open door, pull lever type. These stations are all "local non-interfering", that is, after the lever has been pulled and released, further manipulation thereof will have no effect upon the sounding of the alarm. The pull lever is "L" shaped and arranged so that the pull is forward and downward, permitting use of four fingers in operating, and obviating the catching of fingers between lever and movement plate. The lever is vertical when door is closed, and moves forward to a position permitting an easy grasp when door is opened.

A special key is furnished which may be used either to test the electrical circuit without operating the mechanism or to operate the mechanism without sending in an alarm. This key also serves to open the screw lock of inner door. For presignal stations another key is furnished to control operation of general alarm signals. All coded stations may be provided with means to prevent mixing of signals when two stations are pulled at the same time, at no extra cost. Back boxes are arranged for  $\frac{1}{2}$  in. and  $\frac{3}{4}$  in. conduit and may be "roughed in" so that all wiring work may be completed before mechanism is installed. Weatherproof housings are available for use on loading platforms and the like, where the exposure is more severe.



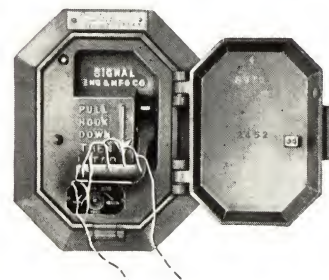
Non-Code, Break Glass, (Hammer and Chain)  
Type NCF (Flush)  
Type NCS (Surface)  
Type NCSF (Semi-flush)



Standard Outlet Box



Coded, Open Door, Pull Lever  
Type FP210 (Flush)  
Type SP210 (Surface)  
Type SFP210 (Semi-flush)



Showing Completion of Downward Pull



"W" Weatherproof Housing for All Types of Stations



### FIRE ALARM EQUIPMENT

#### Signals

We advocate single stroke bells as the only logical signals for interior Fire Alarm Systems. While the Wheelock Duplex horn is recognized as the ideal horn and while the Wheelock vibrating bell is the most satisfactory vibrating bell manufactured, we do not advocate their use for interior Fire Alarm Systems. (See pages 12 and 13.)



Universal  
Back Box



Bell  
Adapter  
Plate



Standard  
Outlet  
Box

#### Trouble Bell

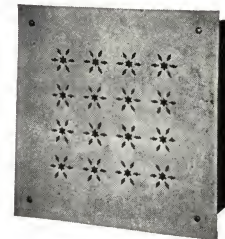
The preferred trouble bell is the rectangular cow gong type which employs the standard 4-in. vibrating mechanism with a rectangular bell metal gong shell. This bell may be attached directly to a surface type housing.



Trouble Bell

#### Grille

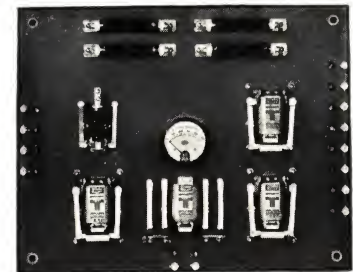
Fancy grilles and back boxes are available for recessed bells. The grilles can be supplied in steel, brass or bronze in various designs and finishes. The back box is of heavy gauge steel with knockouts, and drilled for bell mounting.



Grille

#### Panel

The Control Panel is made of Ebony Asbestos and is equipped with the necessary supervisory and control equipment, including relays, resistors, terminals, etc. When provision for future expansion is necessary, the ultimate number of circuits may be provided, those not needed being strapped out.



Typical Control Panel

#### Housings

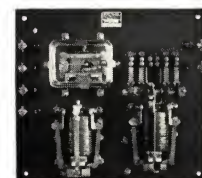
Housings are constructed of code gauge steel and fitted with Yale Lock. Conduit may enter on sides or bottom. Ample wire gutter space is provided. Either glass window or full glass door may be obtained. (Removable trim is special).

#### Sentinel Panel

The Wheelock Sentinel Panel is a safeguard device through which an interior Fire Alarm System may be connected to a municipal box. Operating an interior box will send a signal via the sentinel panel through the municipal box to the Fire Department Headquarters. When the alarm has been completed the sentinel panel automatically returns to normal. An open or ground or derangement of the interior system will not send a signal through the municipal box or cause a stroke on the local signals.

#### Register and Time Stamp

When a permanent record of all alarms is desired, a register and take-up reel may be provided. An electrically operated time stamp may be added when a record of the exact time of each alarm is desired.

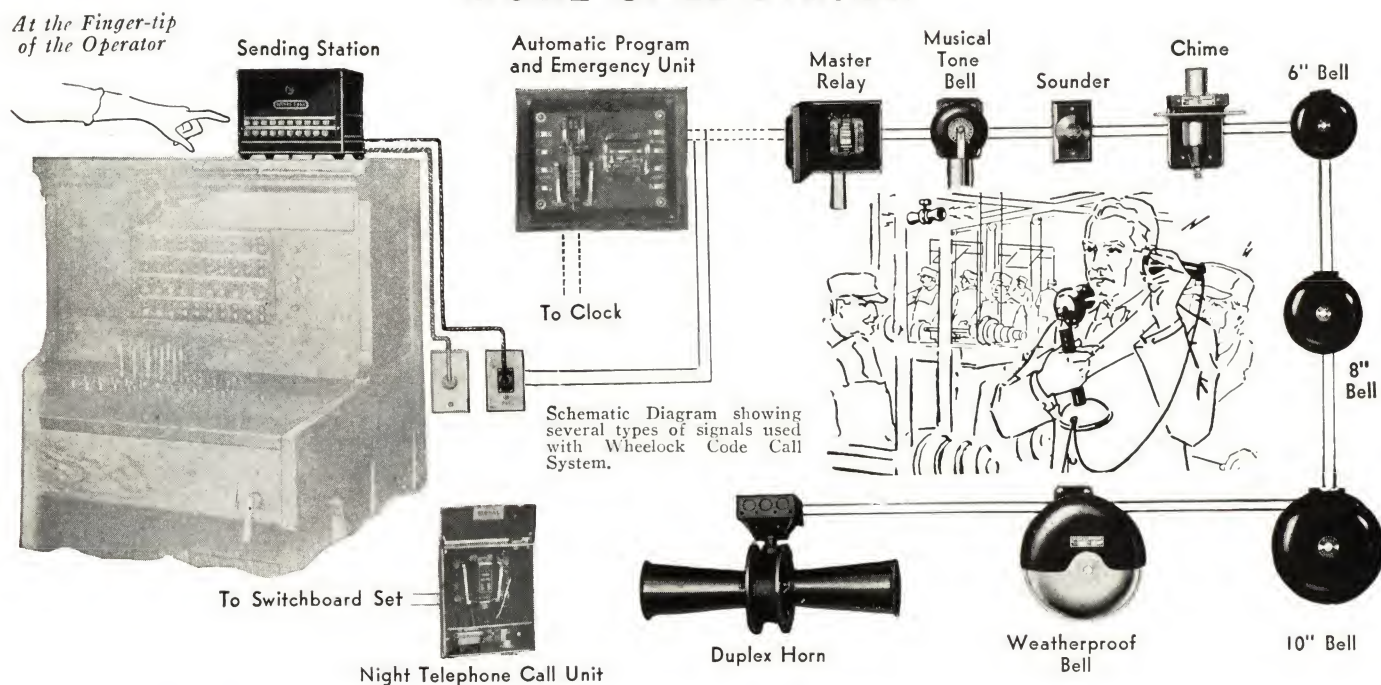


Sentinel Panel

Pilot Lamp and Switch Furnished if Required



## \* CODE CALL SYSTEM



The Wheelock Code Call System is primarily a means for promptly completing telephone calls by automatically reaching members of an organization and calling them to the nearest branch telephone and for broadcasting special messages or emergency signals. Wheelock Code Call service is in general use in factories, hospitals, large offices, banks, schools, garages, department stores, etc.

Code numbers are assigned to members of an organization. When one fails to answer his desk telephone, the operator presses code button which broadcasts his number three times on sounding devices so distributed as to be heard throughout the premises. The person called steps to nearest telephone and the call is *promptly completed*.

### Specifications For Code Call System and Auxiliary Service

A complete Wheelock Code Call System shall be installed, as manufactured by Signal Engineering & Mfg. Co., to operate on ( ) volts (specify voltage and cycles). It shall be complete with sending station, master relay and signals.

**Sending Station:** Shall be so designed that additional key sections may be added to meet future requirements without necessitating changes in wiring. All current interrupting shall occur at readily accessible Master Arcer contacts. The mechanism shall be a jeweled magnetic movement free from any motor. It shall be enclosed in a solid brass, dustproof case with standard black (or special) finish.

**Master Relay:** Shall be capable of handling 10 signals (Alternate for larger systems—25 signals). Coils shall be form wound cotton, impregnated and baked so as to be moisture-proof, and shall stand a breakdown test of 2500 volts 60 cycles for 5 seconds between winding terminals and core. The contact arrangement shall be such that there are two breaks per pole.

**Signals:** Shall consist of Wheelock ( ) (give number and type). All gongs shall be single stroke solenoid type with form wound moisture-proof coils, underdome, free from springs, contact points and hinges. Coils shall stand a breakdown test of 2500 volts 60 cycles for 5 seconds between winding terminals and frame.

### Auxiliary Service

**Automatic Time Sender:** Shall be so designed as to automatically broadcast 15 rapid signals from clock contacts or a push button.

**Night Telephone Service:** Shall permit incoming calls to be brought to the attention of the watchman when operator is not on duty. It shall consist of a Wheelock telephone relay, which shall have a form wound, impregnated, moisture-proof coil.

**Watchman's Call:** Shall be a weatherproof push button (key type contact switch) to be placed at main or other entrance. All signals shall sound once for each operation of the button.

*\*Names of Telephone Companies which Provide on a Rental Basis Furnished upon Request.*



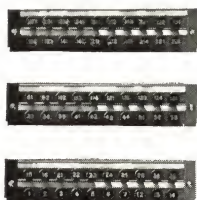
# ELEMENTS OF STANDARD CODE CALL SYSTEM



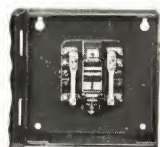
Central Sending Station  
Operating Mechanism and Keyboard in One Unit  
Type A1 (for A.C.)  
Type D1 (for D.C.)



Central Sending Station  
Showing Upper Casing, 10-call  
Section and Footed Base



Patented Sectional Units  
Additional  
20-call Sections

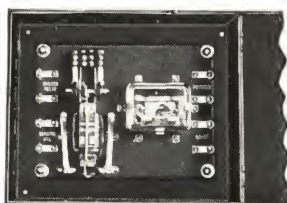


C7-M Master Relay



S7-G Master Relay

## AUXILIARY APPARATUS



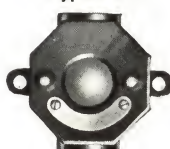
Automatic Program and Emergency Unit  
Type AD2 (for A.C.)  
Type DD2 (for D.C.)



Indoor Watchman's Push  
Button  
2 5/8" dia. x 1 5/8" d.  
Type POH



Night Telephone Call Unit  
Type 3 HB



Weatherproof  
Watchman's Push Button  
3 3/4" w. x 2 5/8" h. x 2 1/2" d.  
Type POW

## Central Sending Station

Driven by magnetic movement with jeweled bearings. Free from noise or magnetic influence. May be placed on a switchboard, obviating necessity for remote control. All current interrupting is done by two readily accessible contacts of a Wheelock Master Arcer. The case is of solid brass, attractively finished in telephone black. Special finishes on request.

Station is furnished complete for 10, 20, 40, or 60 calls. To increase from 10 to 20 calls, the first 20-call section is substituted for the 10 call section. To increase to 40 and 60 calls, 20-call sections are added. More than 60 calls, made on special order. All electrical connections are made automatically when sections are added.

Dimensions: 10 or 20-call station, 7 3/4 x 6 1/2 x 6 1/4 inches. Additional sections, each 1 1/2 inches high.

Power consumption, 30 watts, when in operation.

## Master Relay

The C7-M relay is used to operate up to 10 signals. The S7-G relay is used to operate up to 25 signals. Additional relays connected in multiple or connected to signal lines can be used to operate signals beyond 25. The C7-M and S7-G relays are the Wheelock standard heavy-duty type.

Relay coils energized from the sending station; contacts close the signal circuits. One voltage may be used for the sending station and another for the signals.

Dimensions: C7-M housing, 5 1/4 x 5 1/4 x 2 5/8 inches, 1/2 in. knock-outs; S7-G housing, 6 3/4 x 5 1/4 x 2 3/4 inches, 1/2 in. and 3/4 in. knock-outs.

Current consumption: C7-M—110/60, 0.100 amp.; S7-G—110/60, 0.250 amp.

## Signals

See Pages 12 to 15.

## AUXILIARY APPARATUS

### Auxiliary Automatic Program and Emergency Unit

The Wheelock Code Call System can be used to sound a distinctive signal for starting and stopping of work, or for broadcasting special or emergency signals by the addition of this auxiliary unit. Operated automatically from a program clock, or manually from a push button. The signal given has the right of way over the code call signal, and will interrupt a code call signal, which will automatically continue after the special signal has been completed. When this auxiliary unit is used, the taps of the signals (bell or other) may be set at any speed desired.

Dimensions: 12 x 10 x 5 inches.

Power consumption: 30 watts, when in operation.

### Auxiliary Night Telephone Call Connection

The Wheelock Code Call System can be used for notifying the watchman of incoming calls when the switchboard is unattended. An incoming telephone call actuates a relay, and a predetermined code of the sending station is sounded on all signals. The code is sounded three times and stops automatically. Should it be desired to connect this unit to a leased telephone service, the Telephone Company will make installation of this apparatus. Should the Telephone Company prefer that the customer furnish the unit, we will supply direct.

### Auxiliary Watchman's Call Connection

The Wheelock Code Call System can be used for calling the watchman to the main entrance of the premises when the establishment is closed. A special push button is located at the main entrance. All signals sound once for each operation of the button.



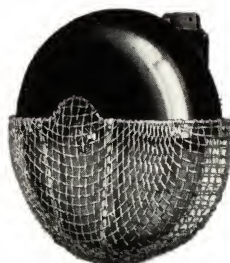
## BELLS SINGLE STROKE VIBRATING



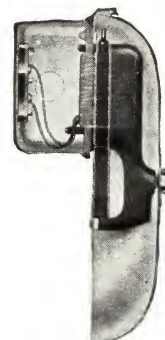
Indoor



Weatherproof



Weatherproof Guarded



Single Stroke



Vibrating

All Wheelock Bells are of the Underdome type with Solenoid and Plunger principle, originated by Signal Engineering & Mfg. Co.

### SINGLE STROKE BELLS

For Multiple or Series Circuits

Only moving part is sturdy rust-proof plunger, which is drawn up quickly when coil is energized. After striking gong a quick single blow, plunger drops back instantly due to force of gravity, rebound, and action of solenoid, allowing gong to vibrate freely, resulting in a true extended sound wave.

Coils form-wound, moisture-proof, and capable of withstanding a 2500 volt 60 cycle breakdown test between coil terminals and frame.

### Indoor Bells

Bells equipped with either hot pressed steel shells, parkerized black (special finish when specified), or polished cast bell metal shells.

### Universal Back Box (for Indoor Bells only)

Wheelock indoor bells, from 4-inch to 12-inch sizes, furnished with universal back box,  $3\frac{1}{4} \times 4 \times 2\frac{1}{8}$  inches, equipped with terminal block and having  $\frac{1}{2}$ -inch knockouts on all sides and back. These are included in price. Shipped with bells or separately, as desired.

Optional:

- (A) 4 or 5-inch standard outlet box with terminal block and adapter plate—add to type designation: 4-inch, “-N4”; 5-inch, “-N5.”
- (B) With adapter plate only (terminals on bell), for 4-inch box, “-U4”; for 5-inch box, “-U5”.

### Outdoor Bells: Weatherproof Bells

Shell of polished cast bell metal. Cast metal hood covers upper half of bell shell, providing protection against rain,

snow, ice, etc. Bell casting sealed to back box with rubber gasket.

### Weatherproof Guarded Bells

Same as weatherproof bell with rigidly secured, heavy wire mesh covering lower half of bell.

### Back Box (for Outdoor Bells)

Made of cast-iron. Equipped with outlets at top and bottom, terminal block to eliminate wire splicing, removable cover plate for access to terminal block, and rubber gasket. Tapped top and bottom with  $\frac{1}{2}$ -inch pipe thread (one plug furnished).

### VIBRATING BELLS

Available in both indoor and outdoor types  
For Multiple (parallel) Circuits only

Identical with Single Stroke Bell with addition of vibrating mechanism.

The unique construction of vibrator and its adaptability to the Single Stroke Bell assures long plunger travel and slower strokes, allowing full efficiency of the bell shell which is not obtainable in any other design of bell.

Vibrator mechanism is so designed that strokes are timed to allow gong to vibrate freely and completely without interference. The result is a true ring: clear, full, and singularly penetrating.

### Grilles for Recessed Bell

Attractively designed grilles, furnished in various designs and finishes. Back boxes are of heavy gauge steel, equipped with  $\frac{1}{2}$  and  $\frac{3}{4}$ -inch knockouts on all sides.

### Special Twenty-Inch Bells

Exceptionally loud and penetrating, particularly suitable for use in such locations as power houses, substations, and the like. Vibrating 20-inch bell has adjustment for speed of strokes.

*When ordering, specify operating voltage and frequency*

*Complete catalog on signals mailed upon request*

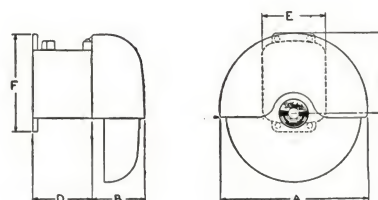
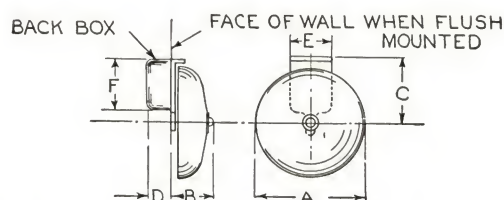


# Wheelock STANDARDS

## BELLS SINGLE STROKE VIBRATING

| AVAILABLE IN FOLLOWING OPERATING VOLTAGES |                     |           |           |                 |           |           |
|---|---------------------|-----------|-----------|-----------------|-----------|-----------|
| Bell Size                                 | Single Stroke Bells |           |           | Vibrating Bells |           |           |
|   | D.C.                | 25 Cycles | 60 Cycles | D.C.            | 25 Cycles | 60 Cycles |
|   | Volts               | Volts     | Volts     | Volts           | Volts     | Volts     |
| 4"  | 3 to 250            | 4½ to 220 | 6 to 250  | 3½ to 250       | 6 to 220  | 12 to 440 |
| 6"-8"                                     | 3 to 250            | 7½ to 250 | 11 to 440 | 4 to 250        | 6½ to 350 | 14 to 440 |
| 10"-12"                                   | 3½ to 340           | 9 to 250  | 11 to 440 | 4½ to 250       | 7 to 250  | 15 to 440 |
| 20"                                       | 110                 | 110       | 11 to 260 | 110             | 110       | 110       |

| APPROXIMATE WEIGHTS OF BELLS |              |             |               |             |
|------------------------------|--------------|-------------|---------------|-------------|
| Size                         | Indoor Bells |             | Outdoor Bells |             |
|                              | Lbs. Net     | Lbs. Ship't | Lbs. Net      | Lbs. Ship't |
| 4"                           | 3            | 6           | 8¼            | 17          |
| 6"                           | 6            | 14          | 10½           | 20          |
| 8"                           | 6½           | 15          | 13½           | 23          |
| 10"                          | 8½           | 18          | 17½           | 27          |
| 12"                          | 10½          | 20          | 20½           | 30          |

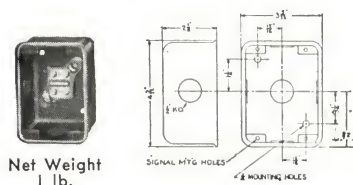


| Size of Bell | Dimensions Indoor Bells (in inches) |    |     |    |    |   |
|--------------|-------------------------------------|----|-----|----|----|---|
|              | A                                   | B  | C   | D  | E  | F |
| 4"           | 4                                   | 2  | 2⅞  | 2⅞ | 3¼ | 4 |
| 6"           | 6                                   | 2¾ | 3⅞  | 2⅞ | 3¼ | 4 |
| 8"           | 8                                   | 2⅞ | 4⅞  | 2⅞ | 3¼ | 4 |
| 10"          | 10                                  | 3½ | 5⅞  | 2⅞ | 3¼ | 4 |
| 12"          | 12                                  | 3¾ | 6⅞  | 2⅞ | 3¼ | 4 |
| 20"          | 20                                  | 7¼ | 10⅞ | 2½ | 5⅞ | 7 |

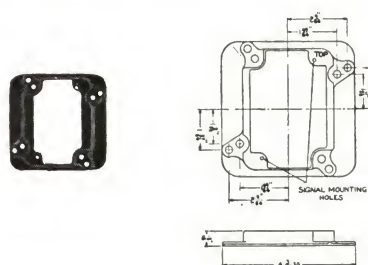
| Size of Bell | Dimensions Weatherproof Bells (in inches) |    |    |   |    |    |
|--------------|---|----|----|---|----|----|
|              | A   | B  | C  | D | E  | F  |
| 4"           | 5   | 2  | 2½ | 4 | 4¼ | 6¼ |
| 6"           | 7   | 3  | 4  | 4 | 4¼ | 6¼ |
| 8"           | 8¾  | 3¼ | 5¼ | 4 | 4¼ | 6¼ |
| 10"          | 10¾                                       | 3½ | 5¾ | 4 | 4¼ | 6¼ |
| 12"          | 12¾                                       | 4  | 6¾ | 4 | 4¼ | 6¼ |

| Size of Bell | Dimensions Weatherproof Guarded Bells (in inches) |    |    |    |    |    |
|--------------|---|----|----|----|----|----|
|              | A   | B  | C  | D  | E  | F  |
| 8"           | 9½  | 4¼ | 5¼ | 3¾ | 4¼ | 6¼ |
| 10"          | 11½   | 5¼ | 5¾ | 3¾ | 4¼ | 6¼ |
| 12"          | 13½   | 5¼ | 6¾ | 3¾ | 4¼ | 6¼ |

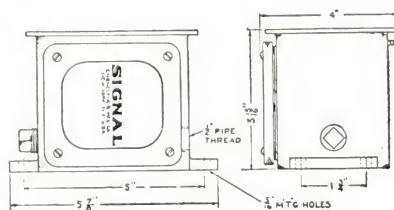
Universal Back Box for Indoor Bells



Bell Adapter Plate for Indoor Bells



Back Box for Outdoor Bells



Net Weight 5 lbs.

### Ordering Information

When ordering Bells, follow guide below for type designations:

- S = Single Stroke, Parkerized Finish (add size).
- V = Vibrating, Parkerized Finish (add size).
- SB = Single Stroke, Cast Bell Metal Shell (add size).
- VB = Vibrating, Cast Bell Metal Shell (add size).
- SBW = Single Stroke, Weatherproof, without guard (add size).
- VBW = Vibrating, Weatherproof, without Guard (add size).
- SBG = Single Stroke, Weatherproof, with Guard (add size).
- VBG = Vibrating, Weatherproof, with Guard (add size).

Specify operating voltage and frequency—see table above.

Example: to order an 8-inch vibrating, weatherproof Guarded Bell for operation at 110 volts 60 cycles, the type designation is: VBG8, 110 volts 60 cycles.



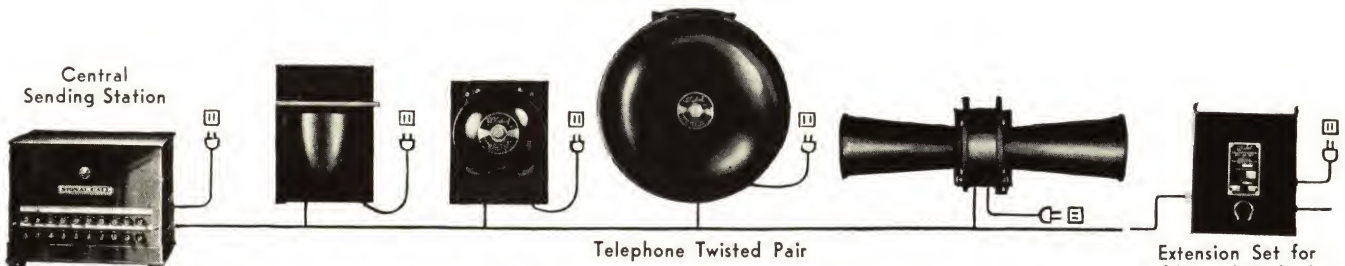




# Wheelock STANDARDS

## PORTABLE DUO POTENTIAL CODE CALL SYSTEM

(Patent Applied for)

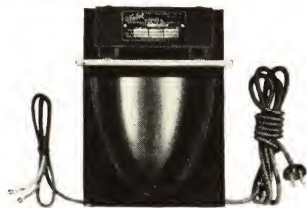


### DUO POTENTIAL APPARATUS

Approved by Underwriters' Laboratories as Portable Devices

#### \*Duo Potential System

For operation over wire similar to telephone pair. Commercial power outlets within 8 feet of signals required. Low voltage current for operating 25 signals provided at the sending station.



#Chime and Deaf Signal (Pitch 980 cycles)  
Type SD7 (specify both primary and secondary voltage and frequency). Type SDT7 (primary 90 volts 20 cycles, specify secondary voltage).



#Chime and Deaf Signal (Pitch 490 cycles)  
Type SD19 (specify both primary and secondary voltage and frequency). Type SDT19 (primary 90 volts 20 cycles, specify secondary voltage).



#Chime and Deaf Signal (Pitch 245 cycles)  
Type SD9 (specify both primary and secondary voltage and frequency). Type SDT9 (primary 90 volts 20 cycles, specify secondary voltage).

‡Duo Potential.

#### \*Extension Sets

These sets provide low voltage current for additional multiples of 25 signals and are connected to the system in the same manner as the signals, thus making unlimited the number of signals that may be operated from the sending station.

#### Signals

Actuation of signals from commercial power, at nearby outlet, controlled by low voltage circuit (over telephone pair or similar wiring).

Each signal supplied with 8 ft. cord and plug for connecting to convenience outlet, and 2½ ft. spade-tipped cord for connecting to low voltage wiring.

Any standard bell or special signal can be supplied as Duo Potential signals.

Have same operating characteristics as standard signals (see pages 13 and 14).

#### \*Telephone Extension Signals

These signals may be furnished for control by telephone ringing current.

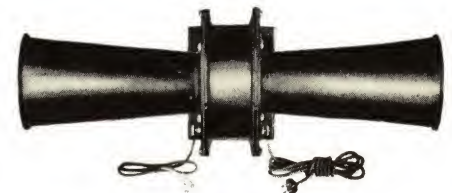
*\*Names of telephone companies which provide on a rental basis furnished upon request.*

*Note—Primary = low voltage supply. Secondary = commercial voltage supply.*



Duo Potential Bell  
Sizes 4"-6"-8"-10"-12"

Type SD (Single Stroke), VD (vibrating). Add size when ordering, for example: Single Stroke Duo Potential 6-inch Bell=SD6. Specify both primary and secondary voltage and frequency. When ordering with primary of 90 volts 20 cycles (for telephone extension) add "T" after last letter, for example: SDT6, and specify secondary voltage. For weather-proof bells add "W" after last letter, for example: VDTW6.



Duo Potential Horn

Type AD1 (specify both primary and secondary voltage and frequency). For D.C. secondary, substitute "D" for first "A." Type ADT1 (primary 90 volts 20 cycles, specify secondary voltage). Also without projectors AD1-2 or ADT1-2, with one projector AD1-1 or ADT1-1. Weatherproof: Add "W" after the last letter, for example: ADTW1-2.



# RELAYS

of Distinction

*Wheelock* STANDARDS

MF'D BY

**SIGNAL**  
ENGINEERING & MFG. CO.  
150 WEST 14<sup>TH</sup> STREET, NEW YORK

Recognized as  
superior in  
design and performance

Types "C9" and "S9" Relays  
are designed to allow setting in manu-  
facturing assembly for various contact  
gaps to suit different requirements. Ac-  
complished by adjustable back contact  
bridge and adjustable stationary con-  
tacts. Adjustment of bridge is in the  
same arc as the movement of contact  
arms. Movable contacts are of special  
floating design. THIS FEATURE  
ALLOWS STANDARDIZING ON  
ONE RELAY FOR ALL PURPOSES.  
Relay may be returned to us for change  
of adjustment.

RELAY catalog RS37  
fully describing and il-  
lustrating all standard  
Wheelock Relays, with  
operating characteristic  
data, mailed upon re-  
quest.

\*Type "A9"  
Relay

A medium-duty, small size re-  
lay, having all the standard single  
or double pole, single or double  
throw switch arrangements. Con-  
trols from one to four independent  
circuits or supplies two different  
sources of power to eight inde-  
pendent circuits. Medium contact  
capacity rating.

\*Type "C9"  
Relay

Special multi-duty relay. Will  
control up to 15 amperes (non-in-  
ductive load) at 110 volts 60 cycles  
with standard contact gap setting.  
Equipped with both front and back  
contacts.

Special all-duty relay. Will con-  
trol up to 30 amperes (non-in-  
ductive load) at 110 volts 60 cycles  
with standard contact gap setting.  
Equipped with front and back  
contacts.

\*Type "S9"  
Relay